

Summary of IS 191 : 2007 Copper – Specification

- Copper is a soft, malleable, and ductile metal with very high thermal and electrical conductivity. The physical properties of copper are one of its most unique features. Other than gold, copper is the only metal that has natural colour. Other metals are either gray or white. Most copper is used in electrical equipment such as wiring and motors. This is because it conducts both heat and electricity very well, and can be drawn into wires. The pure metal is second only to silver in thermal and electrical conductivity. Copper can be recycled without any loss in properties, making it a logical choice in an era of global sustainability.
- There are various methods for refining copper such as electrolytic refining, electro winning , fire refining etc . The standard IS 191 specifies the chemical composition and physical properties for various types of copper in refinery shapes (e.g., wire bars, cakes, billets, and ingots). These shapes are intended for further fabrication or alloying.
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- Different copper grades are listed in the standard, including:
 - **Cu-CATH-1** and **Cu-CATH-2**: High-purity electrolytic cathode copper.
 - **Cu-ETP**: Electrolytic tough pitch copper.
 - **Cu-FRHC**: Fire-refined high conductivity copper.
 - **Cu-FRTP**: Fire-refined tough pitch copper.
 - **Cu-DHP**: Copper-Deoxidized High Phosphorus.
 - **Cu-DPA** :Copper-Deoxidized Phosphorus Arsenical
 - **Cu-ATP** : Copper-Annealed Tough Pitch
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- In this standard in addition to the chemical composition, requirements for electrical conductivity and resistivity and specifications for dimensions, mass, and tolerances are provided for each type of refinery shape. The standard also mentions the requirements which the purchaser must specify like quantity, copper grade, dimensional tolerances, sampling requirements, and if a test certificate is required, at the time of placement of order.